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Date: September 12, 2006 /Rebecca Stanford/
Rebecca Stanford

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:			
Applicant(s):	Fred Discenzo, *et al.*	Examiner:	Jungwon Chang
Serial No:	09/866,414	Art Unit:	2154
Filing Date:	May 25, 2001		

Title: MOTORIZED SYSTEM INTEGRATED CONTROL AND DIAGNOSTICS USING VIBRATION, PRESSURE, TEMPERATURE, SPEED, AND/OR CURRENT ANALYSIS

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

REPLY TO EXAMINER'S ANSWER DATED JULY 12, 2006

Dear Sir:

Appellants' representative submits this Reply Brief in response to the Examiner's Answer mailed July 12, 2006. A credit card payment form is filed concurrently herewith in connection with all fees due regarding this document. In the event any additional fees may be due and/or are not covered by the credit card, the Commissioner is authorized to charge such fees to Deposit Account No. 50-1063 [ALBRP112USA].

I. Regarding the Rejection of Claims 1-7, 10, 11, 15, 31-34, 36, 37, 41-43, 45-47, 49, 53-55 and 57-59 Under 35 U.S.C. §103(a)

Claims 1-7, 10, 11, 15, 31-34, 36, 37, 41-43, 45-47, 49, 53-55and 57-59stand rejected under 35 U.S.C. §103(a) as being obvious over Hays *et al*. (US 6,260,004) in view of Grimm *et al*. (US 6,369,472). This rejection should be reversed for at least the following reasons. Hays *et al*. and Grimm *et al*., either alone or in combination, do not teach or suggest each and every aspect set forth in the subject claims.

Appellants' claimed invention relates to systems and methods for controlling and diagnosing motorized systems according to vibration, pressure, temperature, speed, and/or current analysis. In particular, the claimed subject matter provides a diagnostics and control system for controlling a motorized system and diagnosing the health thereof, with a controller operatively associated with the motorized system and adapted to operate the motorized system in a controlled fashion, and a diagnostics system operatively associated with the motorized system and adapted to diagnose the health of the motorized system according to a measured attribute associated with the motorized system. To this end, independent claims 1, 32, 41 and 57-59 recite similar aspects, namely: ***a diagnostics system integrated with the controller and the motor drive to comprise a single unit***. Neither Hays *et al*. nor Grimm *et al*., either alone or in combination, teach or suggest these features of appellants' claimed invention.

Hays *et al*. discloses an apparatus and method for diagnosing a pump system, wherein diagnostics are utilized to determine impending failures of a pump. Hays *et al*. however does not disclose a motor drive. The Examiner in the Answer now states that the motor drive elucidated in the subject claims can be located at fig. 27; col. 19, lines 1-16; col. 23, lines 5-16; and col. 27, lines 54-63. Appellants' representative disagrees.

Fig. 27 depicts an additional flow chart representing an embodiment of a method of the invention, and more particularly illustrates an additional verification step that may be made wherein a display is generated of the performance curve and secondary curve for comparison. However, fig. 27 and the commentary associated therewith, *viz*., col. 27, lines 54-63, is silent with regard to the disclosure of a motor drive as recited in the subject claims. Rather, it is submitted and contrary to the Examiner's assertion, the figure and associated passage deals with verification steps that can be made when a

display is generated for comparison with performance curves; there is no mention or suggestion of motor drives sufficient to put one of ordinary skill on notice that a motor drive is disclosed therein.

Col. 19, lines 1-16 provides that when an alert indicates an undesirable equipment condition, an optional contact closure can be provided to shut down a pump and motor system wherein the contact closure is located in the diagnostic apparatus to switch voltage or current to provide an alert or safe equipment operation. For example, in one embodiment, contact closure is always "ON" and disconnects when an alert is generated. Conversely, contact closure may default to the "OFF" position and connect when an alert is generated. Other uses for contact closures include lighting a warning light, disconnecting a motor, reducing power to a motor, *etc*. If a variable speed drive motor is utilized, contact closure can be located proximate the motor or may be positioned in a control room. The combination of contact closure with diagnostics results in improved control of the pump and motor system. It is respectfully submitted that the contact closure disclosed in col. 19, lines 1-16 is not a motor drive as disclosed and recited in the subject claims, but rather is a switch that shuts down the pump and motor system.

Col. 23, lines 5-16 provides examples of machine sensors that can used to monitor pump and motor systems such as rotating machine vibration sensors, dynamic pressure sensors, motor vibration sensors, gearbox vibration sensors, motor supply sensors, which may be motor current or motor voltage sensors, alignment sensors, seal leak detectors or sensors, oil contamination sensors, viscosity degradation sensors, torque sensors, angular velocity sensors, corrosion sensors, ultrasonic thickness sensors, accelerometers, bearing temperature sensors, bearing vibration sensors, displacement sensors, and motor insulation resistance sensors or other sensors to monitor equipment conditions. The cited passage, apart from providing an extensive listing of sensors that can be employed to monitor pump and motor systems, makes no mention sufficient to put one of ordinary skill in the art on notice that a motor drive is being taught or suggested by the noted passage.

As was previously stated in appellants' appeal brief, while appellants' representative does not disagree that the cited document provides a driving source to run rotary equipment, it is nevertheless appellants' representative's assertion that the cited

document fails to provide a motor drive as recited in the subject claims. More particularly, it is appellants' representatives contention that the motor drive as recited in the subject claims and disclosed in appellants' specification provides electrical power to a motor from a power source *via* cables in a controlled manner (*e.g.*, at a controlled frequency and amplitude) in accordance with control signals received from a diagnostics and control system. Moreover, the motor drive as disclosed and claimed can, for example, also provide motor current, voltage, and/or torque information to the diagnostics and control system. It is thus submitted that Hays *et al*. is silent with regard to the utilization of a motor drive, and more particularly, does not provide the motor drive recited in the subject claims.

Further, Grimm *et al*. does not cure the aforementioned deficiencies with respect to Hays *et al*. Grimm *et al*. relates to a device for acquiring operating parameters of an electric motor, such as numbers of motor starts and numbers of operating hours to provide reliable information regarding whether electric motors can be reused after a certain operating time or must be discarded. However, Grimm *et al*., like Hays *et al*., is silent with respect to the motor drive recited in the subject claims at issue.

Additionally, in response to the Examiner's contention, based on appellants' the background, that a motor drive providing electrical power to the motor is well known in the art, appellants' representative submits that the Examiner is insidiously employing a 20/20 hindsight road map based analysis to impermissibly provide the missing teaching of the cited document. In essence, the Examiner is basing the rejection on an assertion that it would have been obvious to do something not suggested in the art based solely on the appellants' specification. This sort of rationale has been condemned by the Court of Appeal for the Federal Circuit as being sophistic. *See e.g. Panduit Corp. v. Dennison Manufacturing Co.*, 1 USPQ2d 1593 (Fed. Cir. 1987). Thus it is submitted, a *prima facie* case of obviousness has not been established against appellants' claimed invention. Further, the subject invention would not have been obvious to one ordinarily skilled in the art sufficient to impel him/her to do what the appellants have suggested, other than *via* employment of appellants' specification as a 20/20 hindsight-based road map to achieve the purported invention.

Accordingly, in view of the fact that both the primary and secondary documents are deficient for failing to disclose a motor drive, it is submitted that the primary and secondary documents, alone or in combination, do not render obvious appellants' claimed invention - a single unit that includes a controller, a diagnostics system and a motor drive, wherein the controller conveys control signals to the motor drive based on diagnostic signals generated by the diagnostics system. Accordingly, reversal of this rejection with respect to independent claims 1, 32, 41, and 57-59 (and associated dependent claims) is respectfully requested.

II. Regarding the Rejection of Claims 8, 9, 12-14 and 16-19 Under 35 U.S.C. §103(a)

Claims 8, 9, 12-14 and 16-19 stand rejected under 35 U.S.C. §103(a) as being obvious over Hays *et al*. (US 6,260,004), Grimm *et al*. further in view of Ogi *et al*. (US 5,419,197). This rejection should be reversed for at least the following reasons. Claims 8-9, 12-14 and 16-19 depend from independent claim 1, and Ogi *et al*. does not remedy the aforementioned deficiencies with respect to Hays *et al*. and Grimm *et al*. Accordingly, this rejection should be reversed.

III. Regarding the Rejection of Claims 20-30 and 35 Under 35 U.S.C. §103(a)

Claims 20-30and 35 stand rejected under 35 U.S.C. §103(a) as being obvious over Hays *et al*. (6,260,004), Grimm *et al*. (US 6,369,472) further in view of Petsche *et al*. (5,640,103). This rejection should be reversed for at least the following reasons. Claims 20-30 and 35 depend from independent claim 1 and 32 respectively, and Petsche *et al*. fails to make up for the aforementioned deficiencies with respect to Hays *et al*. and Grimm *et al*. with respect to the respective independent claims. In particular, Petsche *et al*. does not teach or suggest a motor drive that drives a motor in response to a control signal conveyed from a controller disposed within a diagnostics and control system. Accordingly, reversal of this rejection is respectfully requested.

IV. Regarding the Rejection of Claim 48 Under 35 U.S.C. §103(a)

Claim 48 stands rejected under 35 U.S.C. §103(a) as being obvious over Hays *et al*. (US 6,260,004), Grimm *et al*. (US 6,369,472), further in view of Gotou *et al*. (US 4,933,834). Reversal of this rejection is requested for at least the following reasons. Claim 48 depends from independent claim 41, and Gotou *et al*. does not cure the aforementioned deficiencies with respect to the primary and secondary documents. Accordingly, this rejection should be reversed.

CONCLUSION

For at least the above reasons, the claims currently under consideration are believed to be patentable over the cited references. Accordingly, it is respectfully requested that the rejections of claims 1-37, 41-43, 45-49, 53-55, and 57-59 be reversed.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [ALBRP112USA].

Respectfully submitted,

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